

Roll No.

Booklet Code **Q**

Name :

Date : 15th December 2020

ONLINE MODE



Aakash
NATIONAL
TALENT HUNT EXAM

ANTHE
—2020—

(Class VIII Studying Moving to Class IX)

Science, Mathematics & Mental Ability

INSTRUCTIONS FOR CANDIDATE

1. Duration of Test is 1 hr.
2. The Test booklet consists of **35** questions. The maximum marks are **90**. There is **no negative marking** for wrong answer.
3. Pattern of the questions are as under:
 - (i) The question paper consists of five parts i.e., Physics, Chemistry, Biology, Mathematics and Mental Ability. Physics, Chemistry, Biology, Mathematics have **four sections** and Mental Ability has **two sections**.
 - (ii) **Section-I:** This section contains **21** multiple choice questions, which have **only one** correct answer. Each question carries **+2 marks** for correct answer.
 - (iii) **Section-II:** This section contains **6** multiple choice questions, in which **more than one** answer may be correct. Each question carries **+4 marks** for correct answer.
 - (iv) **Section-III:** This section contains **4** multiple choice questions based on Assertion & Reason Type, which have **only one** correct answer. Each question carries **+2 marks** for correct answer.
 - (v) **Section-IV:** This section contains **4** Matrix Match Type questions. Each question has two matching Columns. Column-I has four entries (A, B, C, D) and Column-II has four entries (P, Q, R, S). Each entry in Column-I may match with **one or more** entries in Column-II. Each question carries **+4 marks** for the correct answer.



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SECTION-II : MORE THAN ONE ANSWER TYPE

This section contains 1 multiple choice question, which has 4 choices (1), (2), (3) and (4) out of which **MORE THAN ONE** answer may be correct.

5. Which of the following musical instruments produce sound by beaten?
- (1) Flute
 - (2) Ghatam
 - (3) Manjira
 - (4) Ektara

SECTION-III : ASSERTION & REASON TYPE

This section contains 1 Assertion-Reason type question, which has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

6. **A :** In human being the vibration of the vocal cords produces sound.
R : The quality of voice depends on tightness or looseness of vocal cords.
- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
 - (2) Both (A) and (R) are true but (R) is not the correct explanation of (A)
 - (3) (A) is true but (R) is false
 - (4) (A) is false but (R) is true

SECTION-IV : MATRIX MATCH TYPE

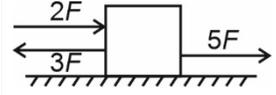
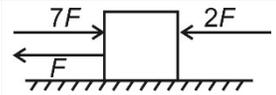
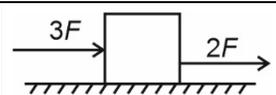
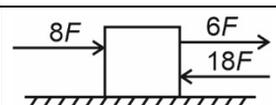
This section contains 1 Matrix Match type question, which has 2 Columns (Column I and Column II). Column I has four entries (A), (B), (C) and (D), Column II has four entries (P), (Q), (R) and (S). Match the entries in Column I with the entries in Column II. Each entry in Column I may match with one or more entries in Column II.

For each entry in Column I, tick the boxes of all the matching entries in Column II. For example, if entry (A) in Column I matches with entries (P) & (S) in Column II, then tick the boxes (P) & (S). Similarly, tick the boxes for entries (B), (C) and (D).

	P	Q	R	S
A.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Space for Rough Work

7. Column I contains four situations in which blocks are placed on smooth horizontal surfaces. Column II contains values of net forces and directions.

	Column I		Column II
(A)		(P)	$4F$
(B)		(Q)	$5F$
(C)		(R)	Towards left
(D)		(S)	Towards right

CHEMISTRY

SECTION-I : SINGLE ANSWER TYPE

This section contains 4 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

8. Which of the following is not an example of plastic?
- (1) PVC
 - (2) Polyethene
 - (3) PET
 - (4) Teflon
9. Which of the following polymers is called cellulose?
- (1) Nylon
 - (2) PET
 - (3) Wool
 - (4) Cotton
10. Nylon is not
- (1) Strong and elastic
 - (2) A man-made fibre
 - (3) Obtained by chemical treatment of wood pulp
 - (4) Lustrous and easy to wash

Space for Rough Work

11. Shailja's mother asked her to put some iron nails in the tool box, but she forgot them in the balcony. After six months, she saw that these nails are covered with some brown flaky substance. She scratched this upper layer and dissolved it in water. Now, choose the correct option about the aqueous solution so formed.

	Physical nature of solution / Type of solution	Effect on litmus paper	Nature of solution
(1)	Transparent	Red litmus paper turns blue	Basic
(2)	Opaque	Blue litmus paper turns red	Acidic
(3)	Suspension	Red litmus paper turns blue	Basic
(4)	True solution	Blue litmus paper turns red	Acidic

SECTION-II : MORE THAN ONE ANSWER TYPE

This section contains 1 multiple choice question, which has 4 choices (1), (2), (3) and (4) out of which **MORE THAN ONE** answer may be correct.

12. Non-metal 'X' is used in the purple coloured solution which is applied on wounds as an antiseptic. Which of the following is not a characteristic of 'X'?
- (1) It does not produce ringing sound when struck with a hammer.
 - (2) It is a good conductor of heat and electricity
 - (3) It can be beaten into thin sheets.
 - (4) It breaks down into a powdery mass on tapping with a hammer.

SECTION-III : ASSERTION & REASON TYPE

This section contains 1 Assertion-Reason type question, which has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

13. **A** : Melamine is used in coating of uniforms of firemen.
R : Melamine is a fire-proof plastic.
- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
 - (2) Both (A) and (R) are true but (R) is not the correct explanation of (A)
 - (3) (A) is true but (R) is false
 - (4) (A) is false but (R) is true

Space for Rough Work

SECTION-IV : MATRIX MATCH TYPE

This section contains 1 Matrix Match type question, which has 2 Columns (Column I and Column II). Column I has four entries (A), (B), (C) and (D), Column II has four entries (P), (Q), (R) and (S). Match the entries in Column I with the entries in Column II. Each entry in Column I may match with one or more entries in Column II.

For each entry in Column I, tick the boxes of all the matching entries in Column II. For example, if entry (A) in Column I matches with entries (P) & (S) in Column II, then tick the boxes (P) & (S). Similarly, tick the boxes for entries (B), (C) and (D).

	P	Q	R	S
A.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Match the Columns.

	Column I		Column II
(A)	Gold	(P)	Used for wrapping food
(B)	Copper	(Q)	Used in making jewellery
(C)	Aluminium	(R)	Used as a fuel
(D)	Carbon	(S)	Used in making electric wire

BIOLOGY
SECTION-I : SINGLE ANSWER TYPE

This section contains 4 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

15. Large areas of protected land for conservation of wildlife, plant and animal resources and traditional life of the tribals living in the area is called
- (1) Zoo
 - (2) Wildlife sanctuary
 - (3) National park
 - (4) Biosphere reserve

Space for Rough Work

16. • These are produced from bacteria and fungi.
• These are used to kill the microorganisms.
Select the correct option on the basis of given information.
- | | |
|----------------|-----------------|
| (1) Antibodies | (2) Vaccines |
| (3) Pathogen | (4) Antibiotics |
17. Which of the following is obtained from fish?
- | | |
|-----------|-------------------|
| (1) Honey | (2) Cod liver oil |
| (3) Milk | (4) Gum |
18. Which of the following cells in humans is spindle-shaped?
- (1) Red blood cell
 - (2) Nerve cell
 - (3) Muscle cell
 - (4) White blood cell

SECTION-II : MORE THAN ONE ANSWER TYPE

This section contains 1 multiple choice question, which has 4 choices (1), (2), (3) and (4) out of which **MORE THAN ONE** answer may be correct.

19. All of the following statements are **incorrect** w.r.t. fertilizer, **except**
- (1) It is prepared in fields
 - (2) It does not provide any humus to the soil
 - (3) It is rich in plant nutrients likes nitrogen, phosphorus and potassium
 - (4) It is a natural substance obtained by plant residues

SECTION-III : ASSERTION & REASON TYPE

This section contains 1 Assertion-Reason type question, which has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

20. **A :** We add salt or acid preservatives to pickles to prevent the attack of microbes.
R : Sodium benzoate and 2, 4-D are the common preservatives.
- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
 - (2) Both (A) and (R) are true but (R) is not the correct explanation of (A)
 - (3) (A) is true but (R) is false
 - (4) (A) is false but (R) is true

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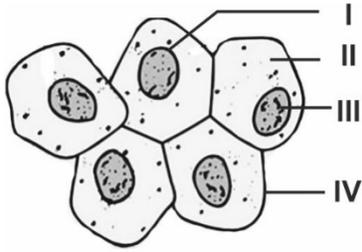
SECTION-IV : MATRIX MATCH TYPE

This section contains 1 Matrix Match type question, which has 2 Columns (Column I and Column II). Column I has four entries (A), (B), (C) and (D), Column II has four entries (P), (Q), (R) and (S). Match the entries in Column I with the entries in Column II. Each entry in Column I may match with one or more entries in Column II.

For each entry in Column I, tick the boxes of all the matching entries in Column II. For example, if entry (A) in Column I matches with entries (P) & (S) in Column II, then tick the boxes (P) & (S). Similarly, tick the boxes for entries (B), (C) and (D).

	P	Q	R	S
A.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21. Match the Columns.



Match the above labelled parts (I-IV) of the figure given in column I with their identifications given in column II.

	Column I		Column II
(A)	I	(P)	It is the control centre of the activities of the cell
(B)	II	(Q)	It is the nuclear membrane
(C)	III	(R)	It is the jelly-like substance present between cell membrane and nucleus
(D)	IV	(S)	It provides shape to the cell

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MATHEMATICS**SECTION-I : SINGLE ANSWER TYPE**

This section contains 4 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

22. A container contains a mixture of 200 litre water and 600 litre alcohol. Abhinav takes out 10% of the mixture and substitutes it by water of the same amount. This process is repeated once again. The percentage of water in the mixture is now.
- (1) 39.25%
(2) 42.5%
(3) 62.25%
(4) 48.25%
23. In a parallelogram $PQRS$, if $PQ = (5x - 3)$, $QR = (2y - 7)$, $RS = (3x + 5)$ and $PS = (y + 3)$, then ratio of PQ and PS is
- (1) 2 : 1
(2) 17 : 9
(3) 5 : 8
(4) 17 : 13
24. The area of a square field is $12\frac{468}{729}$ m². Then, the length of each side (in m) of the field is
- (1) $2\frac{2}{7}$
(2) $3\frac{5}{9}$
(3) $2\frac{3}{7}$
(4) $3\frac{3}{7}$
25. The smallest number by which 44217 should be divided to get a perfect cube is
- (1) 9
(2) 3
(3) 6
(4) 2

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SECTION-II : MORE THAN ONE ANSWER TYPE

This section contains 1 multiple choice question, which has 4 choices (1), (2), (3) and (4) out of which **MORE THAN ONE** answer may be correct.

26. Given below is frequency distribution table of a data.

Classes	Tally Marks	Frequency
0 – 10	I	a
10 – 20		b
20 – 30		c
30 – 40		d
40 – 50		e
50 – 60		f
60 – 70		g

Which of the following is/are correct?

(1) $a + e = f + g$

(2) $a + c + f = g$

(3) $b + c = d$

(4) $2d = f + g$

SECTION-III : ASSERTION & REASON TYPE

This section contains 1 Assertion-Reason type question, which has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

27. **A :** In a school, $\frac{1}{5}$ of total number of students come by motor car while $\frac{1}{4}$ of students come by taxi to

school and the remaining come by walking. Out of those students who come while walking of which $\frac{2}{3}$

walk on their own and the rest are escorted by their parents. If the number of students come to school by walking on their own is equal to sum of greatest two-digit prime number and least multiple of 145, then the number of students in the school is 660.

R : The number of students come by taxi is 165.

(1) Both (A) and (R) are true and (R) is the correct explanation of (A)

(2) Both (A) and (R) are true but (R) is not the correct explanation of (A)

(3) (A) is true but (R) is false

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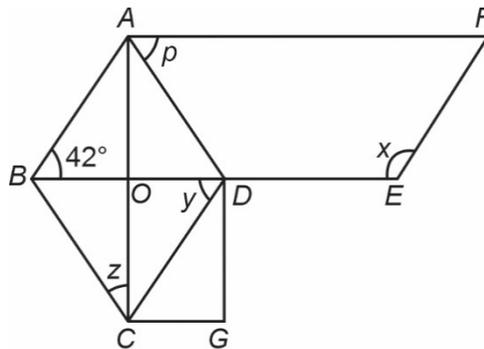
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	P	Q	R	S
A.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

28. In the given figure, $ABCD$ is a rhombus, $AFEB$ is a parallelogram and $ODGC$ is a rectangle.



	Column I		Column II
(A)	The measure of y is	(P)	Half of straight angle
(B)	The measure of p is	(Q)	42°
(C)	The measure of $z + y$ equals	(R)	276°
(D)	The measure of $2x$ equals	(S)	Complement of 48°

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MENTAL ABILITY

SECTION-I : SINGLE ANSWER TYPE

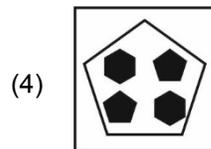
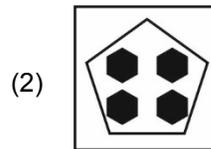
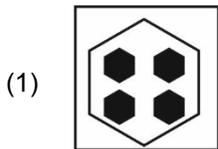
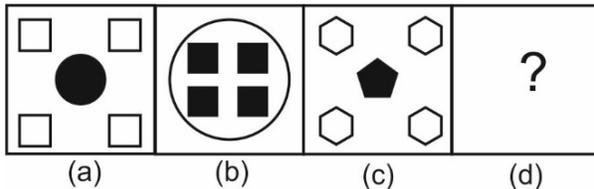
This section contains 5 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

29. How many 6's are immediately preceded and immediately followed by 5 in following pattern?

32566565576656565556523565

- (1) Three
- (2) Four
- (3) Five
- (4) Six

30. Choose the correct figure in place of '?' in such manner that it has same relation with figure 'c' as figure 'a' and 'b' have.



31. Choose the correct number in place of '?'.

235 : 30 :: 521 : 50 :: 626 : 70 :: 729 : ?

- (1) 100
- (2) 80
- (3) 60
- (4) 90

32. If in a certain code language 'M' is written as '962', 'K' is written as '122' and 'L' is written as '442', then 'S' will be written as

- (1) 164
- (2) 162
- (3) 163
- (4) 165

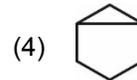
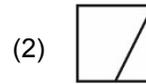
Space for Rough Work

33. The wrong term in the following pattern is
1113, 1317, 1719, 1923, 2329, 2931, 3139, 3741
(1) 2331 (2) 1923
(3) 3139 (4) 3741

SECTION-II : MORE THAN ONE ANSWER TYPE

This section contains 2 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **MORE THAN ONE** answer may be correct.

34. Which of the following figure/s is/are not belonging to the group?



35. Which of the following options are not following same pattern as pattern followed by given numbers?
(25, 36, 125)
(1) (36, 49, 216) (2) (49, 64, 344)
(3) (81, 100, 792) (4) (64, 81, 512)



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Our Result in Olympiads / Scholarship Exams

1598

1556 Classroom + 42 Distance & Digital

in PRMO 2019

115

111 Classroom + 4 Distance & Digital

in RMO 2019

949

832 Classroom + 117 Distance & Digital

in NTSE (Stage - I) 2019-20

366

317 Classroom + 49 Distance & Digital

in NTSE (Stage-II) 2019

591

515 Classroom + 76 Distance & Digital

in KVPY Aptitude Test 2019

450

385 Classroom + 65 Distance & Digital

in KVPY Fellowship Award 2019-20

767

701 Classroom + 66 Distance & Digital

in NSEs 2019

481

466 Classroom + 15 Distance & Digital

in IMO (Level-I) 2018-19

800

728 Classroom + 72 Distance & Digital

in NSO (Level-I) 2019-20

26

20 Classroom + 06 Distance & Digital

in INO 2020



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